Message

From: Froede, Carl [Froede.Carl@epa.gov]
Sent: 2/11/2021 11:17:25 AM
To: Amoroso, Cathy [Amoroso.Cathy@epa.gov]
Subject: FW: Feb 12th EIT Discussion Materials: WAC - TDEC Overview

Importance: High

Cathy,
Received this from Brad. I still have the call with him later this morning (at 7:30 am).
FYI

From: Brad Stephenson <Brad.Stephenson@tn.gov>
Sent: Wednesday, February 10, 2021 4:44 PM
To: Froede, Carl <Froede.Carl@epa.gov>
Subject: RE: Feb 12th EIT Discussion Materials: WAC

Carl,

In prep for our talk Thursday morning, here's an outline of my thoughts from skimming the info you asked about. Today got hectic, so I did not get to digest them thoroughly.

Sorry this is so long, but it's really just the tip of the iceberg. Good thing we are on an unsinkable ship. ☺

- EMDF is a resource. Its capacity should be optimized by disposing of as much radioactive, hazardous, and toxic waste as possible without posing unacceptable risk to HH&E.
- Optimizing use of the resource relies on WAC to distinguish what waste can remain in Oak Ridge (humid, densely populated) and what must go out west (arid, sparsely populated).
- Contrary to 02-04-2021 Mullis letter, WAC are not for protectiveness (CERCLA threshold criterion) during operations. DOE has safety basis requirements to protect workers & public, and presumably CERCLA will establish protective wastewater discharge limits for the operational period. Rather, WAC are intended provide reasonable assurance the landfill will meet DOE performance objectives by keeping radiation exposure low enough to protect the public and intruders after landfill closure (for a period of 1,000 years). CERCLA requires 5-year reviews and remedy effectiveness as long as risk remains, which will be forever if uranium and/or mercury are disposed. In fact, radiation dose during decay and ingrowth of uranium progeny will peak well after the 1,000-year performance period.
- As stated in the 02-04-2021 Mullis letter, the DOE Order 435.1 Process (PA/CA → LFRG Review → PDAS & WAC) is a rigorous process. If done well, it should provide basis for WAC that could be shown to be protective under CERCLA. In my mind, this could be thought of in terms similar to the dispute over setting wastewater discharge limits—EPA's method vs. DOE's method. Each is valid in its own universe, but challenges arise when we attempt to satisfy CERCLA requirements with a DOE approach.
- The DOE process includes a CERCLA loophole, in which a CERCLA ROD can be used to bypass the DOE PA/CA/LFRG process. In fact, that's how EMWMF was approved in the late 1990s.
- Therefore, TDEC requested & DOE committed to independent DOE & CERCLA processes for EMDF (2017 RI/FS DRA) because there is no approved CERCLA risk assessment. Again, it's a poor substitute, but it was the best TDEC could get at the time.
- As part of the independence between the processes, TDEC requested & DOE committed to obtain a PDAS from DOE HQ before the ROD (2017 DRA).
- TDEC requested & DOE committed to protective WAC in the ROD (2018 clarification of 2017 DRA between Commissioner Martineau & Jay Mullis) because WAC varied wildly with little/no justification

from draft to draft of the RI/FS. In some cases, WAC were so low, DOE would not have been able to use the landfill. In other cases, WAC would have allowed unlimited disposal of some problematic radionuclides.

- TDEC relied on DOE delivering a defensible PA/CA as the basis for protective WAC to support protectiveness in the ROD. If it had worked, it would have been imperfect, but TDEC trusted DOE to do this under their self-regulatory AEA authority.
- TDEC & contracted SMEs observed & commented (informally because we have no authority), and OREM (not LFRG) responded (informally). OREM/UCOR maintained a firewall (one-way mirror) between TDEC and LFRG. TDEC (and EPA) could observe, but there was no meaningful interaction with LFRG—only OREM/UCOR. Many TDEC comments on the draft PA/CA were not resolved in the final PA/CA. It is simply disingenuous of OREM to say DOE addressed TDEC comments. Perhaps LFRG was satisfied with the PA/CA, but DOE HQ has yet to issue a PDAS.
- In any case, TDEC SMEs were not satisfied with the OREM/UCOR responses. TDEC SMEs concluded the EMDF PA/CA is not a defensible basis for WAC, primarily because of significant gaps in the waste inventory (especially ORNL), inadequate evaluation of decay progeny, and fundamentally/fatally flawed PA modeling approach that presumed drivers & outcomes instead of determining objectively through the modeling. (See TDEC 10-15-2020 letter for details.)
- The ROD text about WAC that DOE provided for the EIT meeting this week has evolved considerably since the summer 2019 version TDEC reviewed. This latest version provides even less opportunity for EPA & TDEC oversight. That's one approach for negating comments.
- Some of the administrative WAC listed as "negotiated agreements" are really required by state rules that should be ARARs, although DOE may argue to exclude them, contrary to TDEC's understanding of the 2017 DRA.
- Watch for post-ROD elements, such as how WAC will be implemented. It is fair to anticipate evolution of WAC and implementation throughout the operational period (until closure), but some aspects of implementation may drive protectiveness and need to be in the ROD.
- **Dilemma**: How does TDEC (and perhaps EPA) determine the ROD is protective in the absence of protective WAC, defensible PA/CA, or approved CERCLA risk assessment?
- Possible elements of a solution: Begin with very protective (restrictive) WAC, even if there is little technical/practical basis. Then, adjust WAC as waste is characterized and disposed.

Finally, and nobody wants to hear/acknowledge this: CERCLA is not an ideal regulatory framework for authorizing a mixed-waste landfill. The CERCLA process is vulnerable to failure when key elements are bypassed, including the risk assessment, the remedial investigation, the feasibility study, incomplete proposed plan (without WAC in this case), and, potentially, execution of a ROD before all the deficiencies and key concerns are resolved. OREM argues the ROD will be *de facto* protective when EPA & TDEC sign it. If the ROD is signed before DOE HQ issues a PDAS, DOE could bypass/abandon the PA/CA and issue a PDAS based on the ROD, regardless of whether it is defensible or not. Honestly, I cannot imagine DOE HQ would do so for EMDF, but they did it for EMWMF.

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